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THE WEATHER OF THE MONTH.

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PRESSURE.

The distribution of mean atmospheric pressure for July, 1907, over the United States and Canada is graphically shown on Chart VI, and the average values and departures from the normal are shown for each station in Tables I and V.

The general distribution of the mean atmospheric pressure for July showed no marked variation from the normal midsummer type. The relative positions of the more or less permanent areas of high and low pressure, common to the period of the year, were maintained, except that there was a general diminution of pressure over all eastern districts, quite pronounced over New England and the eastern provinces of Canada. Slight excesses of pressure were maintained over the northern Rocky Mountain district, the middle Plateau, the central Pacific coast, and along the Gulf coast.

Over the remaining districts of the United States and Canada pressure averaged below normal, with the greatest deficiency from the Lake region and Middle Atlantic States northeastward over New England and eastern Canada, where the departures from normal ranged from —.05 to —.15 inch.

Low pressure was maintained over the southwest as usual, and the high pressure area over the north Pacific district did not depart materially from the normal, except that it penetrated farther into the northern Plateau and Rocky Mountain districts.

The normal marked rise in pressure over all interior districts from June to July was more pronounced during this year than usual, especially over the Rocky Mountain and Great Plains districts where the increase in pressure during July over the preceding month averaged nearly 0.10 inch. Over both the Atlantic and Pacific coast districts the pressure diminished decidedly from that of June.

The decrease of pressure over the eastern districts with somewhat higher pressure over the northern Rocky Mountain States modified materially the prevailing direction of the surface winds over the districts east of the Rocky Mountains; and instead of normal southerly winds, common to the season, the trend of the winds was decidedly from the west, and in the more northerly districts northwesterly winds prevailed. West of the Rocky Mountains the usual westerly winds prevailed.

TEMPERATURE.

During most of July normal summer temperatures prevailed. No protracted periods of either high or low temperatures occurred, and the monthly mean temperatures showed no marked variation from the average.

Over the South Atlantic and Gulf States, the lower Mississippi Valley, Kansas, and eastern Colorado, along the coast of California, over the whole of Oregon and Washington, and the southern part of New England, the average temperature for the month exceeded the normal by amounts generally less than 2°. From the Lake region westward to and including the Rocky Mountain and Plateau districts, the mean temperature for the month averaged below the normal from 1° to 3°.

The abnormally warm weather over western Texas noted during the last two days of June continued into July, and during the first week of the latter month unusually warm weather prevailed over nearly all portions of the region from Texas westward to and including southern California. The maximum temperatures during this period were generally the highest recorded during the month, and at several points in Arizona and southern California they were as high as or higher than recorded in any previous July. Over the more northern districts, especially the Lake region, Middle Atlantic States, and New England, the first week of the month was decidedly cool, and the minimum temperatures on the 3d and 4th were generally the lowest for the month, and at some points as low as or lower than ever before recorded in July. In exposed places over the northern portions of the above-mentioned districts the temperatures closely approached the freezing point, and light frosts were reported from several localities.

The most prolonged and generally warmest period of the month prevailed from the 15th to the 25th over the interior districts between the Appalachian and Rocky mountains. During this period the temperatures were generally above the normal, with maximum temperatures on the 23d and 24th of 100° or higher over Texas, Oklahoma, Kansas, Missouri, and surrounding districts.

Over the North Pacific States unusually warm weather prevailed during the closing days of the month, with maximum temperatures on the 30th and 31st generally above 100° over nearly all portions of Oregon and Washington.

Maximum temperatures of 90° or higher were recorded over nearly all districts, except the Lake region, the coast of New England, the higher elevations of the Appalachians, over the mountain regions of the west, and along the immediate Pacific coast. Maximum temperatures from 110° to 120° or higher were recorded over southwestern Arizona and southeastern California.

Temperatures below freezing occurred in the mountain districts of Colorado, Wyoming, Idaho, and Montana, and over the high districts of the Sierras in California.

PRECIPITATION.

The distribution of precipitation during July, 1907, is graphically shown on Chart IV by appropriate shading or by figures representing the actual amount of fall.

The rather frequent changes in pressure and the frequent intermingling of warm southerly winds with cooler winds from northerly points were favorable to the development of the usual summer type of local storms, which were especially frequent over the northern half of the country east of the Rocky Mountains and in Arizona and New Mexico. At numerous points in the above districts severe wind, rain, and hailstorms, the details of which appear in other portions of this volume, were destructive of human life and seriously damaged buildings, crops, etc.

The local character of the precipitation is well illustrated on Chart IV, where areas of excessive and deficient amounts appear in close proximity and with unusual frequency.

While small areas appear with decidedly deficient rainfall, the distribution during the several periods of the month was generally favorable to the rapid growth and development of

vegetation. The precipitation over the great central valleys, embracing the greater portion of the corn-growing States, was abundant in amount and generally well distributed thru the month. Over most of the cotton-growing States the precipitation was somewhat deficient in total amount, but frequent light showers prevented injury to agricultural interests.

Precipitation was decidedly light for the season over the Atlantic coast districts from southern New England to Florida, where the total fall was from 2 to 4 inches less than the average, and also over southern Louisiana, eastern and northern Texas, Arkansas, Oklahoma, and southern Kansas, where but little precipitation occurred prior to the 8th, and from the 15th to the 25th practically no rain fell over large portions of the district.

In portions of Arkansas and Oklahoma the month was the driest on record. At Little Rock, Ark., the monthly amount, 0.53 inch, was less than previously recorded in a period of about thirty years, and represented but 13 per cent of the average fall for July.

The usual midsummer precipitation set in over Arizona about the 3d of the month, extending into New Mexico somewhat later, and large portions of both territories received generous and well-distributed amounts at frequent intervals during the month.

The run-off from the heavy rains added materially to the volume of water available for irrigation in the streams of those territories, and the volume of water in the Colorado River was maintained at very high stages during the month.

Heavy precipitation occurred locally over portions of central Kansas, eastern Nebraska, central Iowa, Ohio, West Virginia, western Maryland, and south-central Mississippi.

At Vicksburg, Miss., and vicinity, a terrific rainstorm occurred on the 13th, doing much damage to local interests and breaking the record for heavy precipitation at that station. The amount of fall was nearly 8 inches, of which more than 6 inches fell in four hours.

Precipitation was generally deficient in the Lake region and on the Pacific coast. No rain occurred over the greater portion of the lower elevations of California, and but little in the mountain districts of that State.

HUMIDITY AND SUNSHINE.

Over the Atlantic and Gulf districts, except portions of Florida, the relative humidity was below normal, and this condition also prevailed along the coast of California. Over the remaining districts the amount of moisture in the atmosphere was everywhere above the average, with marked excesses in the northern and central Rocky Mountain and Plateau districts.

A decided excess of sunshine was the rule over Arkansas, Oklahoma, and surrounding districts, the Middle Atlantic States, northern Florida, Colorado, and portions of Oregon and Washington.

From New England westward over the Lake region, upper Mississippi and Missouri valleys, and northern Rocky Mountain districts there was an excess of cloudiness, tho not in proportion to the number of rainy days, which was generally well above the average. Lack of sunshine with a marked excess of cloudy days was also the rule over most of Arizona and portions of New Mexico.

As a result of the seasonable temperature and generous and well-distributed amounts of precipitation received during the month all classes of vegetation made rapid advancement toward normal stages of development, and despite the late opening of the season and the unfavorable conditions attending its early progress the end of July brought favorable prospects for a successful year to all agricultural interests.

WEATHER IN ALASKA.

Reports furnished by the courtesy of the Chief Signal Officer of the Army and by cooperative observers from Alaska indicate the continuance of seasonable weather in that Territory. Considerable cloudy weather and about the normal amount of rainfall prevailed along the coast, while in the interior comparatively clear weather and occasional light showers were the rule.

Temperatures were moderate, as shown by the record from Circle, a point in the interior of the Territory near the Arctic Circle, where the highest temperature recorded was 96°, the lowest, 40°; the average of the highest point reached daily was 77°, and the average of the lowest point reached daily was 46°, with a monthly mean temperature of 62°— values that compare favorably with those recorded at the more northern localities along the Atlantic seaboard.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	12	68.4	− 0.6	−19.0	− 2.7
Middle Atlantic	16	74.5	− 0.2	−12.4	− 1.8
South Atlantic	10	80.3	+ 1.2	+ 4.2	+ 0.6
Florida Peninsula*	8	81.4	+ 0.3	+10.8	+ 1.5
East Gulf	11	81.3	+ 1.1	+13.0	+ 1.9
West Gulf	10	82.1	+ 0.2	+14.1	+ 2.0
Ohio Valley and Tennessee	13	76.9	+ 0.1	− 2.9	− 0.4
Lower Lake	10	70.0	− 1.5	−15.3	− 2.2
Upper Lake	12	67.2	− 0.6	−10.7	− 1.5
North Dakota*	9	66.4	− 1.8	−21.2	− 3.0
Upper Mississippi Valley	15	74.8	− 0.4	− 6.9	− 1.0
Missouri Valley	12	75.1	− 0.7	− 3.2	− 0.5
Northern Slope	9	65.9	− 1.9	− 8.1	− 1.2
Middle Slope	6	77.2	+ 0.6	+ 7.5	+ 1.1
Southern Slope*	7	80.2	− 0.2	+13.6	+ 1.9
Southern Plateau*	12	75.5	− 1.5	+ 1.5	+ 0.2
Middle Plateau*	10	70.3	− 0.5	+ 8.9	+ 1.3
Northern Plateau*	12	67.5	− 0.8	− 2.8	− 0.4
North Pacific	7	61.6	+ 0.4	− 0.5	− 0.1
Middle Pacific	8	65.8	− 1.0	− 1.3	− 0.2
South Pacific	4	71.2	+ 1.4	+ 5.2	+ 0.7

* Regular Weather Bureau and selected cooperative stations.

In Canada.—Director R. F. Stupart says:

A supernormal mean temperature was recorded in July over Vancouver Island and the Cariboo District of British Columbia; also very locally in Alberta, Saskatchewan, Ontario and southwestern Quebec, but over the greater portion of Canada the mean temperature was subnormal. Departures from average were not pronounced, except locally in southwestern Saskatchewan, where a negative departure of 5° was recorded at Swift Current.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	12	2.73	77	−0.8	−4.5
Middle Atlantic	16	2.97	68	−1.4	−3.9
South Atlantic	10	4.06	67	−2.0	−8.3
Florida Peninsula*	8	6.61	102	+0.1	−5.0
East Gulf	11	5.45	98	−0.1	−2.7
West Gulf	10	1.91	59	−1.3	−5.2
Ohio Valley and Tennessee	13	4.87	86	−0.8	−2.0
Lower Lake	10	3.32	97	−0.1	−1.2
Upper Lake	12	3.08	100	0.0	−2.1
North Dakota*	9	3.42	132	+0.9	−1.4
Upper Mississippi Valley	15	5.72	158	+2.1	+0.6
Missouri Valley	12	4.73	123	+0.9	−0.6
Northern Slope	9	2.31	153	+0.8	+1.1
Middle Slope	6	2.64	87	−0.4	−1.8
Southern Slope*	7	2.17	116	+0.3	−0.6
Southern Plateau*	12	1.19	86	−0.2	+1.7
Middle Plateau*	10	0.75	88	−0.1	+1.7
Northern Plateau*	12	0.85	131	+0.2	+1.1
North Pacific	7	0.64	86	−0.1	−7.3
Middle Pacific	8	T.	100	0.0	+2.9
South Pacific	4	0.01	100	0.0	+1.7

* Regular Weather Bureau and selected cooperative stations.

In Canada.—Director Stupart says:

Precipitation in July was deficient over a considerable portion of Canada, but an excess was recorded over large sections of Manitoba, New Ontario, Quebec, and the Maritime Provinces. Vancouver Island, in British Columbia, also recorded an amount slightly in excess of the average. Departures from normal were very marked, positive differences being as high as 95 per cent in the Gaspé Peninsula of Quebec and

northern New Brunswick, while negative departures of from 55 to 64 per cent were recorded in the southern portions of Alberta and Saskatchewan.

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	5 0	+ 0.1	Missouri Valley	4.3	— 0.1
Middle Atlantic	4.6	— 0.2	Northern Slope	3.9	+ 0.1
South Atlantic	4.6	— 0.4	Middle Slope	4.0	0.0
Florida Peninsula	4.1	— 0.9	Southern Slope	4.2	+ 0.4
East Gulf	5.4	+ 0.4	Southern Plateau	3.2	— 0.1
West Gulf	3.7	— 0.5	Middle Plateau	2.9	+ 0.9
Ohio Valley and Tennessee	4.6	0.0	Northern Plateau	3.6	+ 0.5
Lower Lake	4.7	+ 0.2	North Pacific	4.5	+ 0.1
Upper Lake	4.9	+ 0.2	Middle Pacific	4.3	+ 1.4
North Dakota	4.6	+ 0.3	South Pacific	2.5	— 0.2
Upper Mississippi Valley	4.7	+ 0.4			

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
	%			%	
New England	77	— 3	Missouri Valley	70	+ 4
Middle Atlantic	73	— 1	Northern Slope	63	+ 9
South Atlantic	79	— 1	Middle Slope	62	+ 2
Florida Peninsula	79	— 1	Southern Slope	63	+ 4
East Gulf	77	— 1	Southern Plateau	43	+ 3
West Gulf	73	— 1	Middle Plateau	38	+ 6
Ohio Valley and Tennessee	72	+ 3	Northern Plateau	47	+ 7
Lower Lake	72	+ 3	North Pacific	75	+ 1
Upper Lake	73	+ 1	Middle Pacific	61	+ 3
North Dakota	72	+ 5	South Pacific	62	— 2
Upper Mississippi Valley	74	+ 6			

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Amarillo, Tex	1	53	n.	Minneapolis, Minn	13	53	w.
Do	10	55	nw.	Modena, Utah	4	50	sw.
Augusta, Ga	25	50	w.	Mount Tamalpais, Cal	6	56	nw.
Block Island, R. I	20	50	nw.	North Head, Wash	3	58	se.
Cairo, Ill	19	54	nw.	Pierre, S. Dak	4	51	w.
Del Rio, Tex	2	66	ne.	Point Reyes Light, Cal	3	53	nw.
Duluth, Minn	23	56	nw.	Do	7	50	nw.
Hannibal, Mo	23	56	ne.	Do	14	59	nw.
Huron, S. Dak	20	50	ne.	Do	25	56	nw.
Lewiston, Idaho	3	52	w.	San Antonio, Tex	2	60	nw.
Lincoln, Nebr	18	52	n.	Wilmington, N. C	10	50	nw.
Louisville, Ky	9	60	w.				